KSU readout status: purple card

good news: channel A/B problem is gone

channel B of purple card was very noisy

(7 ADC counts)

gone after replacing 50 connector cable

even gone when using the old cable again

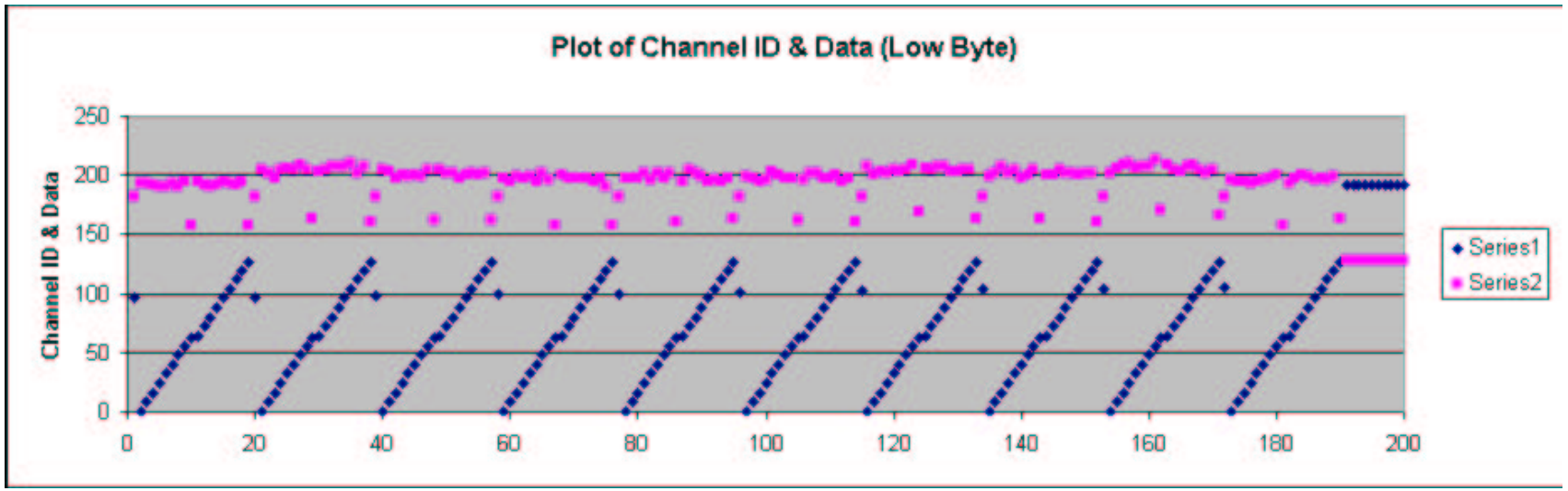
$\longrightarrow$ was probably a bad connection

(but how can this lead to these symptoms?)

Sparsified/neighbor mode readout

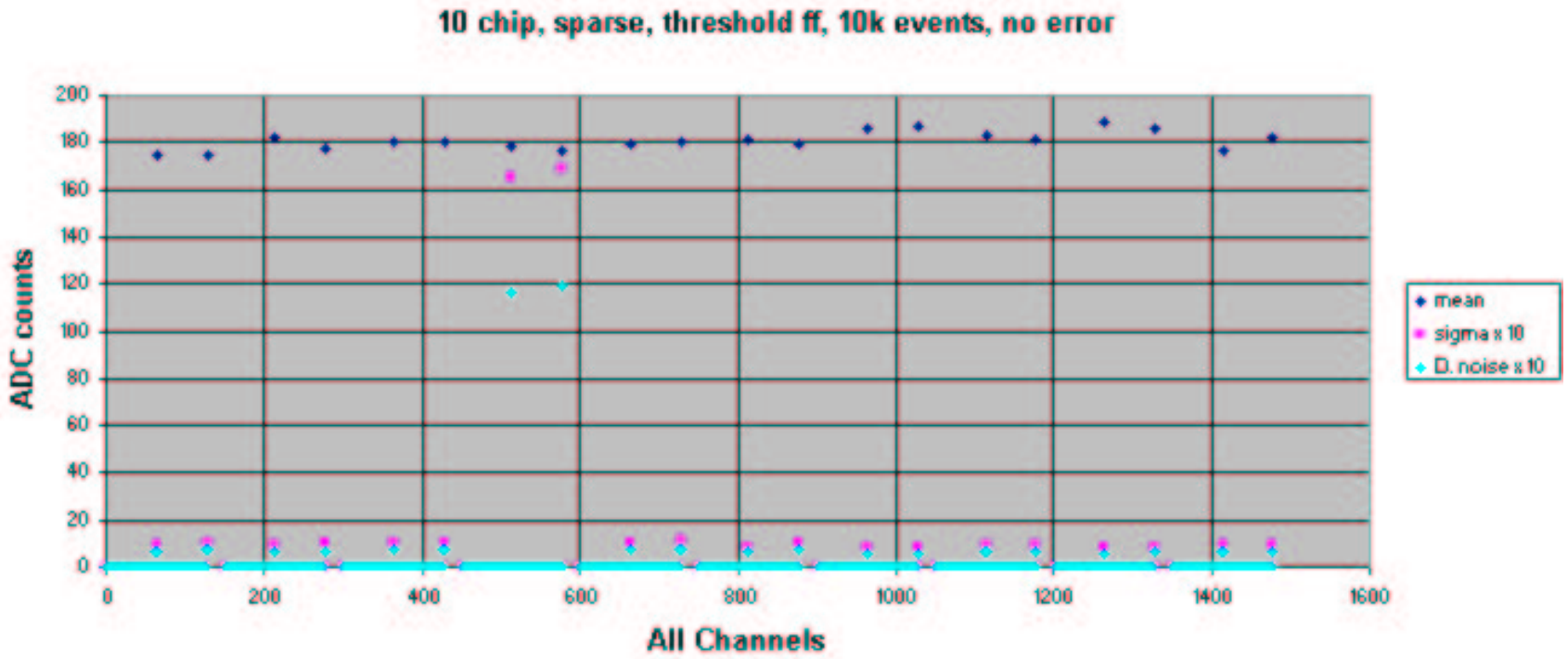
Works fine (except occasional stuttering):

Example: sparse mode (no neighbors), calinjection, threshold EE (only calinjected channels pass), channels 63 and 127 switched on.



Sparsified mode: noise analysis

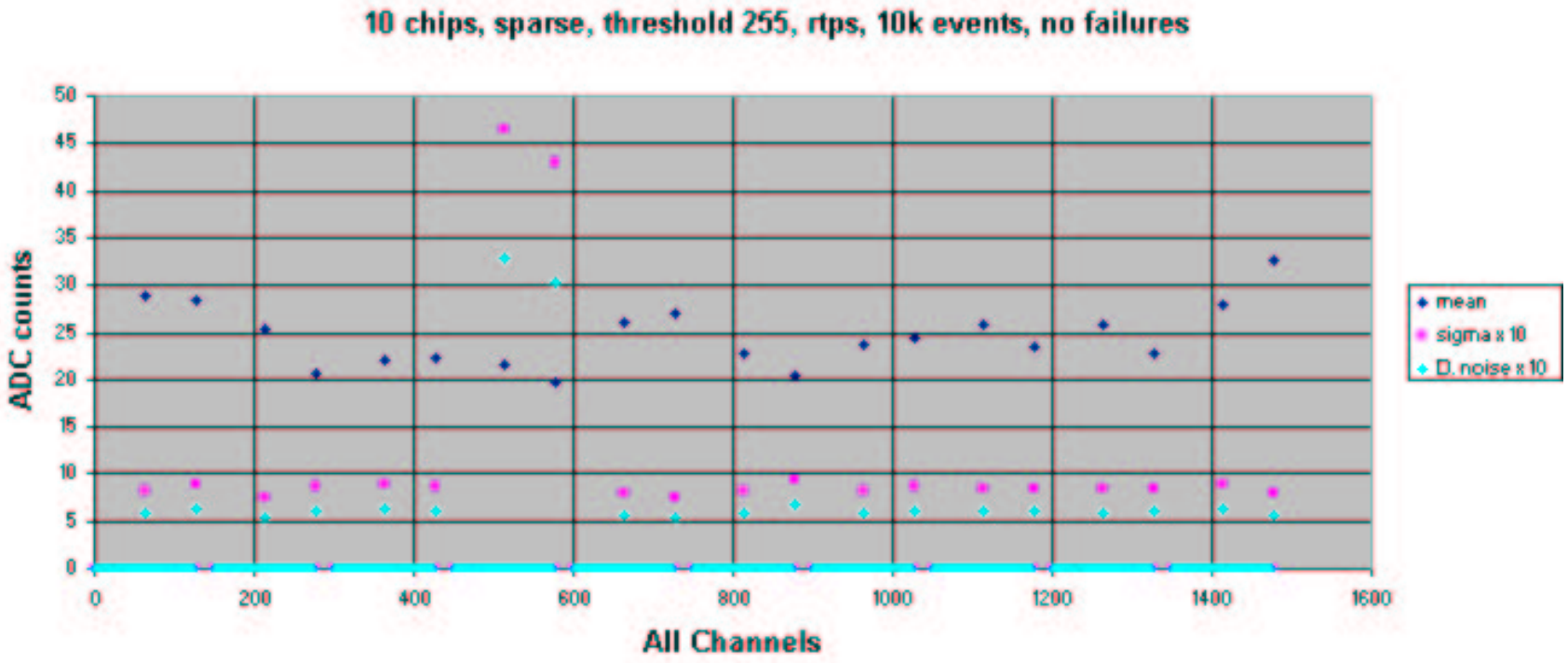
Example: sparse mode (no neighbors), calinjection, threshold FF, channels 63+127 on.



good! (except known problems with chip 4)

Sparsified mode: noise analysis

Example: sparse mode (no neighbors), calinjection, threshold FF, channels 63+127 on.



with RTPS: also fine!

Spreadsheet status at KSU

- added sparsified mode error handling and statistics
  (override error flag from DLL)
- optionally veto events with 0 ADC channels
  (for noise analysis in data mode)
- added Gray code conversion tools
  (extra sheet with bin/dec/hex Gray (un)conversion)
- added debug plots
  (pause after each readout error and show details)
- threshold setup easier
  (had to enter Gray coded binary. now: hex integer)
- faster readout cycle (removed unnecessary delay)

Summary

- Sparsified/neighbor mode works as expected
- Spreadsheet updates for improved debugging

Remaining problems:

events with 0 ADC count channels in data mode

$\longrightarrow$???

sparse mode channel 127 stuttering

$\longrightarrow$ wait for next SVX4 revision

noise in high speed readout, bimodal pedestals

$\longrightarrow$ to be fixed by SASEQ firmware upgrade?